Amendments to the Claims:

1-2. (Canceled)

3. (Currently amended) The magnetic resonance imaging scanner as set forth in ~~claim 1~~ claim 8, wherein the first distance equals the third distance.

4. (Currently amended) The magnetic resonance imaging scanner as set forth in ~~claim 1~~ claim 8, wherein the first set of shims has a radial symmetry respective to the cylinder axis.

5. (Previously presented) The magnetic resonance imaging scanner as set forth in claim 4, wherein the first set of shims has a bilateral symmetry respective to a longitudinal symmetry plane that is perpendicular to the cylinder axis.

6. (Previously presented) The magnetic resonance imaging scanner as set forth in claim 5, wherein the second set of shims is asymmetric about at least one of the cylinder axis and the longitudinal plane of symmetry.

7. (Canceled)

8. (Currently amended) ~~The~~ A magnetic resonance imaging scanner ~~as set forth in claim 7,~~ including:

a generally cylindrical main magnet assembly that defines a cylinder axis;

a first set of shims rigidly positioned inside the main magnet assembly at about a first distance relative to the cylinder axis, the first set of shims including a generally cylindrical dielectric former, packets of magnetic material disposed on the generally cylindrical dielectric former, and plastic encapsulation encapsulating the packets of magnetic material, wherein the plastic encapsulation includes openings through which molding fixtures are removed;

a second set of shims rigidly positioned inside the main magnet assembly at about a second distance relative to the cylinder axis, the second distance being different from the first distance;

a generally cylindrical radio frequency coil arranged inside the main magnet assembly at about a third distance relative to the cylinder axis; and

a plurality of gradient coils arranged inside the main magnet assembly at about a fourth distance relative to the cylinder axis.

9. (Currently amended) The magnetic resonance imaging scanner as set forth in ~~claim 7~~ claim 8, wherein the plastic encapsulation includes:

a separately molded trays each securing one or more of the packets of magnetic material to the generally cylindrical dielectric former.

10. (Currently amended) The magnetic resonance imaging scanner as set forth in ~~claim 7~~ claim 8, wherein the plastic encapsulation has a coefficient of thermal expansion $\alpha_{encapsulation}$ such that $\varepsilon_{ult} \geq (\Delta\alpha \bullet \Delta T)F.S.$, where $\Delta\alpha = \alpha_{encapsulation} - \alpha_{shim}$, $\Delta T = T_g - T_{min}$, ε_{ult} is the ultimate strain of the encapsulation material, $\alpha_{encapsulation}$ is the coefficient of thermal expansion of the encapsulation material, α_{shim} is the coefficient of thermal expansion of the shim material, T_g is the glass transition temperature of the encapsulation material, T_{min} is a minimum use temperature, and F.S. is a factor of safety.

11. (Currently amended) The magnetic resonance imaging scanner as set forth in ~~claim 7~~ claim 8, wherein the plastic encapsulation is made of a polyetherimide thermoplastic.

12. (Currently amended) The magnetic resonance imaging scanner as set forth in ~~claim 7~~ claim 8, wherein the packets of magnetic material each include:

one or more steel plates secured together by at least one fastener.

13. (Previously presented)The magnetic resonance imaging scanner as set forth in claim 12, wherein the steel plates have rounded edges to reduce stress between the steel plates and the plastic encapulation.

14. (Currently amended) ~~The~~ A magnetic resonance imaging scanner ~~as set forth in claim 7,~~ including:

a generally cylindrical main magnet assembly that defines a cylinder axis;

a first set of shims rigidly positioned inside the main magnet assembly at about a first distance relative to the cylinder axis, the first set of shims including a generally cylindrical dielectric former, packets of magnetic material disposed on the generally cylindrical dielectric former, and plastic encapsulation encapsulating the packets of magnetic material;

a second set of shims rigidly positioned inside the main magnet assembly at about a second distance relative to the cylinder axis, the second distance being different from the first distance;

a generally cylindrical radio frequency coil arranged inside the main magnet assembly at about a third distance relative to the cylinder axis; and

a plurality of gradient coils arranged inside the main magnet assembly at about a fourth distance relative to the cylinder axis;

wherein the radio frequency coil includes[[:]] a plurality of rungs arranged generally parallel to the cylinder axis, wherein the packets of magnetic material are disposed at radial positions between the rungs.

15. (Previously presented)The magnetic resonance imaging scanner as set forth in claim 14, wherein the first distance equals the third distance, and the radio frequency coil rungs are secured to the generally cylindrical dielectric former.

16. (Previously presented)The magnetic resonance imaging scanner as set forth in claim 14, further including:

shim rings arranged inside the main magnet assembly at a distance larger than the first distance and less than the second distance, the shim rings being arranged symmetrically relative to a longitudinal plane of symmetry.

17-18. (Canceled)

19. (Currently amended) ~~The~~ A method ~~as set forth in claim 18, wherein the positioning of the first set of shims includes~~ of making a magnetic resonance scanner, the method including:

rigidly positioning a first set of shims inside a main magnet assembly at about a first distance relative to a cylinder axis of the main magnet assembly by molding a plastic material around the first shims[[;]] and bonding the molded plastic material to a generally cylindrical former;

rigidly positioning a second set of shims inside the main magnet assembly at about a second distance relative to the cylinder axis, the second distance being different from the first distance;

mounting a generally cylindrical radio frequency coil inside the main magnet assembly at about a third distance relative to the cylinder axis; and

mounting a plurality of gradient coils inside the main magnet assembly at about a fourth distance relative to the cylinder axis.

20. (Previously presented)The method as set forth in claim 19, wherein the molding includes:

fastening the first shims in an injection mold using at least one fastener; and

injection molding the plastic material around the first shims.

21. (Original) The method as set forth in claim 20, wherein the molding further includes:

after the injection molding, removing the at least one fastener.

22. (Previously presented)The method as set forth in claim 20, wherein the molding further includes:

prior to the fastening of each first shim in the injection mold, binding a selected number of metal sheets together to define the first shim.

23. (Previously presented)The method as set forth in claim 19, wherein the bonding of the molded plastic material to the generally cylindrical former includes:

ultrasonically bonding the molded plastic material to a separately molded tray; and

fastening the separately molded tray to the dielectric former.

24. (Previously presented)The method as set forth in claim 19, wherein the molding of a plastic material around the first set of shims produces a plurality of moldings each including at least one shim of the first set of shims, and the bonding of the molded plastic material to the generally cylindrical former includes:

bonding the moldings at radially spaced apart positions around the generally cylindrical former.

25. (Previously presented)The method as set forth in claim 24, further including:

securing rungs of the radio frequency coil to the generally cylindrical former in radial gaps between the moldings.

26. (Currently amended) The method as set forth in ~~claim 18~~ claim 19, wherein the molding of the plastic material around the shim includes:

molding the plastic material around the shim; and

thermally annealing to relieve stress between the shim and the plastic material.

27. (Canceled)

28. (New) The magnetic resonance imaging scanner as set forth in claim 8, wherein the first distance equals the third distance, and the radio frequency coil rungs are secured to the generally cylindrical dielectric former.

29. (New) The magnetic resonance imaging scanner as set forth in claim 14, wherein the first distance equals the third distance.

30. (New) The magnetic resonance imaging scanner as set forth in claim 14, wherein the plastic encapsulation has a coefficient of thermal expansion $\alpha_{encapsulation}$ such that $\varepsilon_{ult} \geq (\Delta\alpha \bullet \Delta T)F.S.$, where $\Delta\alpha = \alpha_{encapsulation} - \alpha_{shim}$, $\Delta T = T_g - T_{min}$, ε_{ult} is the ultimate strain of the encapsulation material, $\alpha_{encapsulation}$ is the coefficient of thermal expansion of the encapsulation material, α_{shim} is the coefficient of thermal expansion of the shim material, T_g is the glass transition temperature of the encapsulation material, T_{min} is a minimum use temperature, and F.S. is a factor of safety.

31. (New) The magnetic resonance imaging scanner as set forth in claim 14, wherein the packets of magnetic material each include one or more steel plates secured together by at least one fastener, and the steel plates have rounded edges to reduce stress between the steel plates and the plastic encapulation.

32. (New) The magnetic resonance imaging scanner as set forth in claim 14, wherein the first set of shims has a radial symmetry respective to the cylinder axis.

33. (New) The magnetic resonance imaging scanner as set forth in claim 14, wherein the plastic encapsulation is made of a polyetherimide thermoplastic.